

Title (en)  
EAR-COUPLING DETECTION AND ADJUSTMENT OF ADAPTIVE RESPONSE IN NOISE-CANCELING IN PERSONAL AUDIO DEVICES

Title (de)  
OHRKOPPLUNGSERKENNUNG UND EINSTELLUNG EINER ADAPTIVEN REAKTION BEI DER RAUSCHUNTERDRÜCKUNG BEI PERSÖNLICHEN AUDIOVORRICHTUNGEN

Title (fr)  
DéTECTION DE COUPLAGE AUDITIF ET RÉGLAGE DE RÉPONSE ADAPTATIVE POUR L'ANNULATION DU BRUIT DANS DES DISPOSITIFS AUDIO PERSONNELS

Publication  
**EP 4036908 A1 20220803 (EN)**

Application  
**EP 22158807 A 20120430**

Priority

- US 201161493162 P 20110603
- US 201113310380 A 20111202
- EP 14177399 A 20120430
- EP 12722573 A 20120430
- US 2012035807 W 20120430

Abstract (en)  
A personal audio device, such as a wireless telephone, includes an adaptive noise canceling (ANC) circuit that adaptively generates an anti-noise signal from a reference microphone signal and injects the anti-noise signal into the speaker or other transducer output to cause cancellation of ambient audio sounds. An error microphone is also provided proximate the speaker to estimate an electro-acoustical path from the noise canceling circuit through the transducer. A processing circuit determines a degree of coupling between the user's ear and the transducer and adjusts the adaptive cancellation of the ambient sounds to prevent erroneous and possibly disruptive generation of the anti-noise signal if the degree of coupling lies either below or above a range of normal operating ear contact pressure.

IPC 8 full level  
**G10K 11/178** (2006.01)

CPC (source: CN EP KR US)  
**G10K 11/175** (2013.01 - CN KR US); **G10K 11/17817** (2017.12 - EP KR US); **G10K 11/17825** (2017.12 - EP KR US); **G10K 11/17833** (2017.12 - EP KR US); **G10K 11/17881** (2017.12 - EP KR US); **G10K 11/17885** (2017.12 - EP KR US); **H04R 3/00** (2013.01 - CN KR); **G10K 2210/108** (2013.01 - EP KR US); **G10K 2210/3039** (2013.01 - EP KR US); **G10K 2210/3055** (2013.01 - EP KR US); **G10K 2210/503** (2013.01 - EP KR US); **H04R 2430/00** (2013.01 - CN KR)

Citation (applicant)

- WO 2010117714 A1 20101014 - BOSE CORP [US], et al
- US 2010322430 A1 20101223 - ISBERG PETER [SE]

Citation (search report)

- [YA] WO 2010117714 A1 20101014 - BOSE CORP [US], et al
- [Y] US 2010322430 A1 20101223 - ISBERG PETER [SE]
- [A] US 2004264706 A1 20041230 - RAY LAURA R [US], et al
- [Y] US 2010061564 A1 20100311 - CLEMOW RICHARD [GB], et al
- [Y] US 6118878 A 20000912 - JONES OWEN [GB]
- [A] US 2010310086 A1 20101209 - MAGRATH ANTHONY JAMES [GB], et al
- [A] WO 2010131154 A1 20101118 - KONINKL PHILIPS ELECTRONICS NV [NL], et al

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2012166272 A2 20121206; WO 2012166272 A3 20130801**; CN 103597540 A 20140219; CN 103597540 B 20170606; CN 107295443 A 20171024; CN 107295443 B 20211221; EP 2715717 A2 20140409; EP 2804173 A2 20141119; EP 2804173 A3 20151111; EP 2804173 B1 20220427; EP 4036908 A1 20220803; JP 2014522508 A 20140904; JP 2016106276 A 20160616; JP 6092197 B2 20170308; JP 6208792 B2 20171004; KR 101915450 B1 20181106; KR 101957699 B1 20190314; KR 20140033440 A 20140318; KR 20180122030 A 20181109; US 2012207317 A1 20120816; US 2015092953 A1 20150402; US 8908877 B2 20141209; US 9646595 B2 20170509

DOCDB simple family (application)  
**US 2012035807 W 20120430**; CN 201280027237 A 20120430; CN 201710437516 A 20120430; EP 12722573 A 20120430; EP 14177399 A 20120430; EP 22158807 A 20120430; JP 2014513514 A 20120430; JP 2016046597 A 20160310; KR 20137033780 A 20120430; KR 20187031291 A 20120430; US 201113310380 A 20111202; US 201414564611 A 20141209